NASA Glenn and STS-107:
Exploring Limits in Microgravity

The material below has been selected to enhance your understanding of microgravity concepts and the microgravity experiments on STS-107. Click on the links to go directly to the items.

Fact Sheets

Experiment fact sheets are two-page summaries that serve as basic introductions to the individual experiments. They contain text, photographs (with captions), and contact information. The fact sheets are suitable for printing.

- Combustion Module-2
- Laminar Soot Processes-2
- Structure of Flame Balls at Low Lewis-number-2
- Critical Viscosity of Xenon-2
- Mist
- SAMS-FF/OARE/PIMS

Image Gallery

The gallery consists of photos of the STS-107 microgravity experiments, the Shuttle Columbia, and the International Space Station. (Photo editors: if you would like high-resolution versions of these photos, please contact CM-2 Project Manager Ann Over.)

STS-107 Mission Images:

- The launch of Columbia
- A closeup view of the launch
- The SPACEHAB module in the open cargo bay
- The moon as seen from Columbia
- The LSP-2 team at the Payload Control Center (PCC)
- An LSP-2 flame during a test
- Crew member Michael Anderson installing the LSP-2 EMS
- The SOFBALL-2 team at the PCC
- A collage of SOFBALL-2 flame balls
- The Mist team at the PCC
- Crew members Chawla and Ramon unpacking the Mist EMS
- Crew members Chawla and Ramon installing the Mist EMS into the CM-2
- A collage of the Mist flame
- Crew members posing in front of the installed Mist EMS
- The CM-2 work area at the PCC
- The CM-2 ground team at work
- NASA engineers working the second shift at the PCC
- Crew member Anderson working in the SPACEHAB module

- Crew member Chawla talking to the ground team about the CM-2
- Dr. Robert Berg, the CVX-2 Principal Investigator
- The CVX-2 team
- The SAMS-FF/PIMS team at work in the PCC
- The SAMS-FF CDU installed in the SPACEHAB module
- Additional SAMS-FF hardware in the module
- A group photo of the seven astronauts floating in the module

Pre-Flight Images:

- A drawing of the shuttle showing experiment locations
- Final preflight testing of CM-2
- CM-2 being installed in the SPACEHAB module
- CM-2 in the SPACEHAB module
- CM-2 and major components identified
- NASA Engineers inspecting CM-2
- Astronaut Voss opening the combustion chamber
- Photo of soot particles taken during a previous mission
- Laser image of soot produced by a flame
- Comparison of a laminar jet diffusion flame in 1g and microgravity
- Various LSP flames photographed during STS-83
- An LSP flame and the soot sampler bank during STS-83
- The LSP-2 Project Scientist and astronauts during training
- The LSP-2 Experiment Mounting Structure
- Astronaut Crouch inserting the LSP-1 EMS during a 1997 mission
- Flames balls recorded by a camera with an image intensifier
- Two astronauts practice inserting the SOFBALL-2 EMS into CM-2
- Astronaut Voss pointing at flames balls during STS-94
- A color-enhanced image of flames balls
- The SOFBALL Experiment Mounting Structure
- An image of the first flames balls recorded during orbit (STS-83)
- Images of a flame traveling through the Mist tube
- Color-enhanced images of a flame in the Mist tube
- A Mist flame during 1g testing
- A schematic of the Mist Experiment Mounting Structure
- The Mist EMS
- Mist Co-Investigator Dr. Angel Abbud-Madrid instructing astronauts
- A closeup of the oscillator and electrodes
- A cutaway of the CVX-2 test cell
- A view of CVX-1 in the shuttle's open payload bay
- The SAM-FF triaxial sensor head
- The SAMS-FF control and data acquisition unit
- The SAMS-FF triaxial sensor head and fiber optic gyroscope
- The crew training on SAMS-FF hardware

Educational Material

The Microgravity Teachers Guide contains background information accompanied by classroom activities that enable students to experiment with the forces and processes microgravity scientists are investigating today.

The Microgravity Demonstrator is a small drop tower designed by NASA engineers to demonstrate and teach principles of microgravity science and relationships to science and math. The Microgravity Demonstrator provides instructions for building a microgravity demonstrator and includes classroom activities.

Related Web Resources

The web links below provide additional information about the STS-107 mission, the experiments, and the astronauts. Some of the links include preflight information, others include material that was updated during the flight, and still others include postflight science results.

General STS-107 Mission Information:

- The NASA Glenn STS-107 site on the Microgravity Science Division home page: http://microgravity.grc.nasa.gov/sts-107/
- The Office of Biological and Physical Research's STS-107 page: http://spaceresearch.nasa.gov/sts-107/
- STS-107 astronaut photos and biographies: http://www.nasa.gov/columbia/crew/index.html
- Space Shuttle Columbia Home Page: http://www.nasa.gov/columbia/
- STS-107 science and payloads: http://spaceresearch.nasa.gov/sts-107
- STS-107 press kit: http://www.shuttlepresskit.com/STS-107/index.htm
- NASA's STS-107 Shuttle Mission Imagery page:

  http://spaceflight.nasa.gov/gallery/images/shuttle/sts-107/ndxpage1.html

STS-107 NASA Glenn Research Center's Experiments:

- The Combustion Module web site:

  http://microgravity.grc.nasa.gov/combustion/cm/cm_index.htm

- The LSP experiment web site:

  http://microgravity.grc.nasa.gov/combustion/lsp/lsp_index.htm

- The Water Mist experiment web site:

  http://microgravity.grc.nasa.gov/combustion/mist/mist_index.htm

- The SOFBALL experiment web site:

  http://microgravity.grc.nasa.gov/combustion/sofball/sofball_index.htm

- The CVX-2 experiment web site: http://microgravity.grc.nasa.gov/cvx2/

- The SAMS web site:

  http://microgravity.grc.nasa.gov/MSD/MSD_htmls/samsff.html

- The OARE web site:

  http://microgravity.grc.nasa.gov/MSD/MSD_htmls/oare.html

- The PIMS web site:

  http://microgravity.grc.nasa.gov/MSD/MSD_htmls/PIMS.html

Other NASA Sites:

- NASA Spacelink's microgravity educational resources site:

  http://spacelink.nasa.gov/Instructional.Materials/Curriculum.Support/Physical.Science/Microgravity/.index.html

- The NASA Home Page: http://www.nasa.gov/

- The Glenn Research Center Home Page: http://www.grc.nasa.gov/

- NASA TV web site: http://www.nasa.gov/multimedia/nasatv/index.html

- The NASA Human Spaceflight site (Johnson Space Center):

  http://spaceflight.nasa.gov/

- KSC's On-line Launch Schedule:

  http://www-pao.ksc.nasa.gov/kscpao/schedule/schedule.htm
- KSC's Shuttle Liftoff Status page:

  http://www-pao.ksc.nasa.gov/kscpao/shuttle/summaries/current.htm
- KSC's Direct (web broadcast programming):

  http://www.ksc.nasa.gov/KSCDirect/index.htm
- NASA Glenn Research Center's 2.2 Second Drop Tower:

  http://microgravity.grc.nasa.gov/drop2/index.htm